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EXHIBITS "A" AND "B" - 4 PAGES

Pages 26, 036

Reinforcements Europe

R099 P319

Technical data sheet

**Roving for long fiber
Polypropylene**

R099 P319 is an E-glass direct roving, specially designed for use in long fiber pellets thermoplastics process (LFT & direct LFT).

R099 P319 allows a very good impregnation at high throughput and generates low fuzz build-up during processing. It is treated with silane based coupling, specially designed to provide excellent mechanical performance with polypropylene resin systems.

Identification

Example : R099 2400 P319

R099 : SG Vetrotex code for direct rovings

2400 : nominal linear weight of roving (tex)

P319 : SG Vetrotex code for sizing system

Technical characteristics (nominal values)

Linear weight (tex)	Filament diameter	Loss on ignition (%)	Moisture (%)
ISO 1889	(µm)	ISO 1887	ISO 3344
1200	17	0.60	≤ 0.10
2400	17	0.60	≤ 0.10

Refer to the Standard Product Specification for more precise information on the characteristics of the product.

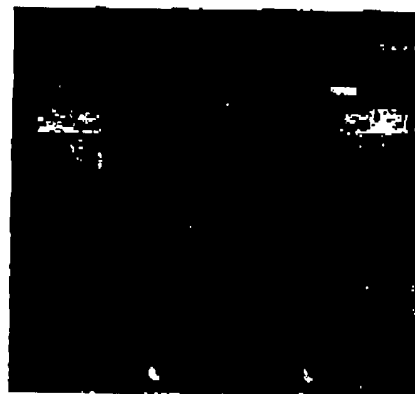
Products available (standard ref.)

Cheeses for internal unwinding.

Characteristics of complete cheeses			
Internal diameter (mm)	External diameter (mm)	Height (mm)	Approx. nominal weight (kg)
165	310	280	20.5

Properties

- excellent processing characteristics
 - outstanding impregnation in PP
 - no fuzz
 - no static electricity
- high level of mechanical properties with polypropylene resin systems



SAINT-GOBAIN
VETROTEX

EXHIBIT "A"

Packaging (standard ref.)

- Individual packaging : each cheese is packaged in a wrapped film which should be retained in place during unwinding.
- Bulk packaging : cheeses are palletised and enclosed with a cardboard cover and a stretched film.

Cheeses per pallet	Layers per pallet	Cheeses per layer	Pallet dimensions L x W x H (cm)	Approximate net weight (kg)
44	4	11	120 x 100 x 120	900

Shipment (standard ref.)

Weights given hereafter are approximate values

Road transport		Sea transport	
Standard trailer 13.40 m		20' container	
Number of pallets	Net weight (t) (maximum)	Number of pallets (maximum)	Net weight (t)
24	22	20	16

* On two levels : 1 level of pallets with 4 layers and 1 level of pallets with 3 layers.

Storage

RO99 roving must be stored in its original packaging away from humidity and at a moderate temperature. The best conditions are at a temperature between 15 and 35°C and at a 35 to 65% relative humidity level.

If the product is stored at low temperature (below 15°C), it is advisable to condition it in the workshop for at least 24 hours before use, to prevent condensation. The stretched film must be removed just before use.

Static stacking of the pallets is possible up to two high (1/1).

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Saint-Gobain Vetrotex reserves the right to change the information given herein without prior notice.

For further information our web site: www.vetrotexeurope.com

(05/2002)



CUSTOMER ACCEPTANCE STANDARDS

Vⁿ ERF 40
Date 02-01-10
Supersedes 97-09-20
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R43SX6 TYPE 30 @ DIRECT ROVING FOR LONG FIBERS REINFORCEMENT OF THERMOPLASTICS

1 PRODUCT DESCRIPTION

R43SX6 Type 30 is a single strand direct roving. The 17 µm filaments have a silane based size (R43S) designed to give good compatibility with numerous thermoplastics (PA, PP, PC, PPS ...) and wet strength retention. It has particularly good compatibility with PA (nylon).

This product is made using Advantex® glass fibre. Advantex combines the excellent mechanical and electrical properties of traditional E glasses with the acid corrosion resistance of E-CR glass. Advantex satisfies the description of both E and E-CR glass according to ISO 2078. Advantex qualifies as an E-CR glass as per DIN 1259 and ASTM D578.

R43S roving is manufactured in conformity with the following standards: ISO 2797, NF B38151 and DIN 61655.

2 APPLICATION

R43S Type 30 is designed for long fibre thermoplastics reinforcement. The size is designed to provide adequate impregnation with maximum process speed.

3. AVAILABLE PRODUCTS

Identification number	Avg. diameter (µm)	Bare glass linear density (tex)	Available package	Approxim. pkg weight (kg)
R43SX6	17	2400	C	23
R43SX6	17	2400	V	32

4 PACKAGING IDENTIFICATION AND PALLETIZATION

For packaging, identification and palletization see packaging standard EPS 34 & EPS 76.

Package C: for order quantities of more than one pallet shipment shall be composed of min. 60% (by weight) of packages weighing 21 to 28 kg (C-F) and max 40% (by weight) of packages weighing 4.5 to 20.9 kg (C-P).

Package V: pallets of "V" packages can contain a maximum of 4 bobbins of 4.5 to 32 kg on the top layer.

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EXHIBIT "B"

ERF 55
00-12-11
2/2

5. SIGNIFICANT PROPERTIES AND TEST METHODS

Property	Product (tex)	Specification			Test method (1)
		Min	Nominal	Max	
Linear density (tex) (glass + size)	2400	2210	2410	2610	TM-RO-01-PP
Moisture					
• % loss on drying	All	-	-	0.15	TM-RO-01-PP
• Forte index (2)	All	-	-	180	TM-RO-08-PP
Solids (3) (% loss on ignition after drying)	2400	0.53	0.70	0.87	TM-RO-01-PP

(1) Available upon request.

(2) Only valid for C balls checked on L'Andoise FORTE machine.

(3) For solids on direct rovings, the sample must be taken after having discarded 1000 g from the outside and/or the inside of the package.

6. VISUAL REQUIREMENTS

The Type 30 ball shall be firmly and evenly wound with a uniform lay, equal traverse length. The Type 30 roving ball shall be wound with even tension and exhibit no catenary.

The flanges of the package may present a yellowish aspect which is inherent in the product and is not a cause for reject.

A package that has (inside the build or on its surface) visible grease, oil, dirt or other foreign matter, 3 mm or less diameter, is rejectable if the total number of defects exceeds two (2). A package is also rejectable if it contains one (1) or more of such defects greater than 3 mm in diameter.

Any package build deformity which interferes with the smooth and uniform runoff of the strand is a cause for rejection of the package.

7. STORAGE CONDITIONS

Glass fibre products must remain in packaging material until just prior to its use. It is recommended to bring material in the workshop place 24 hours at least prior use. Optimal atmospheric processing conditions are: temperature between 20-22°C and relative humidity between 60-65%.

The packaging system is designed to allow stacking of two pallets. When stacking two high, care should be taken to lace correctly and smoothly the top pallet. Owens Corning is not responsible for any damage resulting from stacking pallets higher than two high.

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Approved by : Customer Support Team